

Claims

- Sub A²
1. Method (600, 800, 1000) for transmitting data on a packet data channel, where
 - the packet data channel is formed by sequential radio bursts in certain time slots in
 - 5 a certain sequence of radio frames,
 - data is transmitted (801) in data blocks,
 - a packet data channel is used by a number of packet data connections and
 - an identifier in each data block is used (801) to indicate the connection to which the data block is related, said method comprising the step of selecting (802, 1002)
 - 10 the number of radio bursts, using which a data block is transmitted, from a certain set of values, which set contains at least two values.
 2. Method according to claim 1, further comprising the steps of:
 - coding (804) each of said data blocks before transmission,
 - 15 - aggregating (705) the resulting coded data blocks (501, 502, 511, 521) to at least one aggregated coded data block (500, 510, 520), each of which aggregated coded data blocks consists of at least one part, a number of parts (501, 502) being complete coded data blocks and a number of other parts (511, 521) being partial coded data blocks, and
 - 20 - transmitting each part within an aggregated coded data block using a part-specific number of radio bursts in such a way that the sum of part-specific numbers within the aggregated coded data block is a certain predetermined number.
 3. Method according to claim 2, wherein a number of aggregated coded data blocks
 - 25 contain only one part, which is a complete coded data block.
 4. Method according to claim 2, wherein an aggregated coded data block (510, 520) containing a part (511, 521), which is a partial coded data block, contains only said
 - 30 part.
 5. Method according to claim 2, wherein the method, using which a certain data block is coded, is selected based on the number of radio bursts selected for said data block.
 6. Method according to claim 2, wherein the number of radio bursts for transmitting a data block is selected based on the method using which said data block is coded.
 7. Method according to claim 2, wherein

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- the number of radio bursts for transmitting a data block is selected for each packet data channel and
- all data blocks transmitted on a packet data channel are transmitted using said selected packet data channel specific number of radio bursts.

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8. Method according to claim 2, wherein the number of radio bursts for transmitting a data block is selected separately for each data block.

9. Method according to claim 2, further comprising the steps of:

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- constructing (806) a header (701, 711, 721, 731, 741) for each aggregated coded data block, and
- transmitting (806) the header of the aggregated coded data block using same radio bursts as the aggregated coded data block.

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10. Method according to claim 2, further comprising the steps of:

- constructing a header for each part within an aggregated coded data block, and
- transmitting each header using same radio bursts as the part related to it.

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11. Method according to claim 2 further comprising the step of communicating (604, 806, 910, 1003) a designation of the radio bursts, using which a part of the aggregated coded data block is transmitted, at least to the mobile station related to the connection indicated in the data block in the part.

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12. Method according to claim 11, wherein the designation of radio bursts is signaled to the mobile station using a signaling channel different from the packet data channel.

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13. Method according to claim 11, further comprising the steps of:

- constructing (806) a header (711, 721, 731, 741) for an aggregated coded data block, and
 - transmitting (808) the header of an aggregated coded data block using same radio bursts as the aggregated coded data block,
- and wherein the designation of radio bursts is communicated to the mobile station with said header.

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14. Method according to claim 13, wherein the number of downlink radio bursts (751, 752, 753, 754) used to transmit a part within an aggregated coded data block is

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indicated for each part of said aggregated coded data block in said header (711, 741) of said aggregated coded data block.

5 15. Method according to claim 13, wherein the designation of uplink radio bursts is communicated to the mobile station with said header (721, 731, 741) of a downlink aggregated coded data block.

16. Method (900, 1000) according claim 15, further comprising the steps of:
 - designating uplink radio bursts to mobile stations using a second identifier (412, 702) and third identifiers (761, 762, 763, 764), which second and third identifiers said header of a downlink aggregated coded data block comprises,
 - reserving (904, 905) certain first values of the second identifier to designate said predetermined number of uplink radio bursts to a certain mobile station,
 - reserving (904, 907) certain second values of the second identifier, which are different from the first values, to designate said predetermined number of uplink bursts to a certain group of mobile stations, and
 - indicating (909) the mobile station related to certain uplink radio bursts within said predetermined number of uplink radio bursts with said third identifier.

20 17. Method according to claim 16, wherein the number of uplink radio bursts (771, 772, 773, 774), using which a part of an uplink aggregated coded data block is transmitted, is indicated for each part of said uplink aggregated coded data block in said header (731, 741) of a downlink aggregated coded data block.

25 18. Method according to claim 17, wherein the number of downlink radio bursts (751, 752, 753, 754) used to transmit a part of said downlink aggregated coded data block is indicated for each part of said downlink aggregated coded data block in said header (741) of said downlink aggregated coded data block.

30 19. A mobile station (1110), comprising
 - means (1113, 1114) for transmitting uplink data blocks,
 - means (1114, 1116) for receiving downlink data blocks,
 - means (1115) for detecting the number of downlink radio bursts using which a downlink data block is transmitted and
 35 - means (1112) for selecting the number of uplink radio bursts using which an uplink data block is transmitted.

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20. Mobile station according to claim 19, wherein the means (1112) for selecting the number of uplink radio bursts are means for selecting the number of uplink radio bursts as dictated by the cellular radio system.

5 21. Mobile station according to claim 19, wherein the means (1112) for selecting the number of uplink radio bursts are means for selecting the number of uplink radio bursts independently.

10 22. Mobile station according to claim 19, said mobile station being a mobile station of the EGPRS system.

23. An arrangement (1120), comprising
- means (1123, 1124) for transmitting downlink data blocks,
- means (1124, 1126) for receiving uplink data blocks, and
15 - means (1122) for selecting the number of downlink radio bursts using which a downlink data block is transmitted.

24. An arrangement according to claim 23, further comprising means for selecting the number of uplink radio bursts using which an uplink data block is transmitted.

20 25. A network element (1140), comprising
- means (1122) for selecting the number of downlink radio bursts using which a downlink data block is transmitted and
- means for selecting the number of uplink radio bursts using which an uplink data
25 block is transmitted.

26. Network element according to claim 25, said network element being a packet control unit of an EGPRS system.